

CLAIMS:

1. A bump formation method comprising a sequence of:

a first step that forms a ball on a tip end of a wire that passes through a capillary and joins said ball to a conductor to form a press-bonded ball;

a second step that raises and moves said capillary in a horizontal direction so that a flat portion on a lower end of said capillary is positioned to face said press-bonded ball;

a third step that lowers said capillary so that said press-bonded ball is pressed to form a first bump;

a fourth step that raises and lowers said capillary in an opposite horizontal direction from said horizontal-direction movement of said capillary in said second step so that said flat portion on said lower end of said capillary is positioned to face said first bump;

a fifth step that lowers said capillary so that said wire is bent and pressed against a surface of said first bump, thus forming a second bump; and

a sixth step that cuts said wire from said second bump.

2. A bump formation method comprising a sequence of:

a first step that forms a ball on a tip end of a wire that passes through a capillary and joins said ball to a conductor to form a press-bonded ball;

a second step that raises and moves said capillary in a horizontal direction so that a flat portion on a lower end of said capillary is positioned to face said press-bonded ball;

a third step that lowers said capillary so that said press-bonded ball is pressed to form a first bump;

a fourth step that raises and lowers said capillary in an opposite horizontal direction from said horizontal-direction movement of said capillary in said second step so that said flat portion on said lower end of said capillary is positioned to face said first bump;

a fifth step that lowers said capillary so that said wire is bent and pressed against a surface of said first bump, thus forming a second bump; and

a sixth step that raises and moves said capillary in an opposite horizontal direction from said horizontal-direction movement in said fourth step so as to cause said flat portion on said lower end of said capillary to be positioned to face said second bump;

a seventh step that lowers said capillary so that said wire is bent and pressed against a surface of said second bump to form a third bump; and

an eighth step that cuts said wire from a uppermost bump.

3. A wire bonding method in which wire bonding between a first conductor and second conductor is executed by performing primary bonding to a surface of a first conductor and then performing secondary bonding to a surface of a second conductor, said method comprising a sequence of:

a first step that forms a ball on a tip end of a wire that passes through a capillary and joins said ball to a conductor to form a press-bonded ball;

a second step that raises and moves said capillary in a horizontal direction so that a flat portion on a lower end of said capillary is positioned to face said press-bonded ball;

a third step that lowers said capillary so that said press-bonded ball is pressed to form a first bump;

a fourth step that raises and lowers said capillary in an opposite horizontal direction from said horizontal-direction movement of said capillary in said second step so that said flat portion on said lower end of said capillary is positioned to face said first bump;

a fifth step that lowers said capillary so that said wire is bent and pressed against a surface of said first bump, thus forming a second bump with a direction of inclination of an inclined wedge oriented toward an opposite side from said first conductor; and

a sixth step that cuts said wire from said second bump, thus forming a two-stage bump; and then

said primary bonding is thereafter performed, after which said wire is looped from the said first conductor with respect to said bump, and said secondary bonding is performed on said inclined wedge on the upper portion of said bump.

4. A wire bonding method in which wire bonding between a first conductor and second conductor is executed by performing primary bonding to a surface of a first conductor and then performing secondary bonding to a surface of a second conductor, said method comprising a sequence of:

a first step that forms a ball on a tip end of a wire that passes through a capillary and joins said ball to a conductor to form a press-bonded ball;

a second step that raises and moves said capillary in a horizontal direction so that a flat portion on a lower end of said capillary is positioned to face said press-bonded ball;

a third step that lowers said capillary so that said press-bonded ball is pressed to form a first bump;

a fourth step that raises and lowers said capillary in an opposite horizontal direction from said horizontal-direction movement of said capillary in said second step so that said flat portion on said lower end of said capillary is positioned to face said first bump;

a fifth step that lowers said capillary so that said wire is bent and pressed against a surface of said first bump, thus forming a second bump; and

a sixth step that raises and moves said capillary in an opposite horizontal direction from said horizontal-direction movement of said capillary in said fourth step so as to cause said flat portion on said lower end of said capillary to be positioned to face said second bump;

a seventh step that lowers said capillary so that said wire is bent and pressed against a surface of said second bump to form a third bump; and

an eighth step that forms an inclined wedge on a final uppermost bump so that a direction of inclination of said inclined wedge is oriented toward an opposite side from said first conductor, said eighth step further cutting said wire from said final uppermost bump, thus forming a multi-stage bump; and then

said primary bonding is thereafter performed, after which said wire is looped from said first conductor with respect to said bump, and said secondary bonding is performed on said inclined wedge on the upper portion of said bump.